

15¢

\$5.50 A YEAR

February 28, 1959

VOL. 75 NO. 9

PAGES 129-144

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Satellite "Eyes"

See Page 134

A SCIENCE SERVICE PUBLICATION

# BOOK CLOVER'S SPECIAL!

Up to 60% reduction  
on all scientific books

**B1039. LISTEN AND LEARN LANGUAGE COURSES.** Learn to speak a foreign language by the modern, up-to-date Direct Method, made possible by the Miracle of Long Playing records. Instead of the usual price of \$25.00 to \$50.00, we bring these courses in French, Spanish, German and Italian to you at a price of \$5.95 each. Each course consists of three Hi-Fidelity, unbreakable Vinyl, long playing 10" records, plus a simplified language manual that corresponds with the recorded lessons. This manual is especially valuable while listening to the record and as a speech guide while conversing in the foreign language. Indispensable for students and travelers.

(a).....Listen and Learn FRENCH  
(b).....Listen and Learn SPANISH  
(c).....Listen and Learn GERMAN  
(d).....Listen and Learn ITALIAN  
(e).....Listen and Learn RUSSIAN

Only \$5.95 ea.

**B536. LOVE IN THE SOUTH SEAS.** By Benet Danielsson, anthropologist on the Kon-Tiki voyage. A complete, accurate, frankly written account of the family and sex life of the Polynesians, that deals with sex instruction, marriage customs, sexual freedom and prohibitions, attitude toward nudity, abortion and virginity, and the basic concepts of a people to whom the sexual act is as natural as eating and drinking. Photos. Pub. at \$4.00.

Only \$3.25

**B1040. MISSION ON THE NILE.** By J. Dempsey. A complete and fascinating study of the peoples, culture and geography of the Nile. Illustrated with photographs and drawings, the book has the feel of "being there." Pub. at \$6.00.

Only \$4.95

**B1098. GAS TURBINES AND JET PROPULSION.** By G. Gordon B.E. Covering every phase of the subject, this book describes the achievement and problems of all the major countries in this field. Hundreds of illustrations and charts. Indexed. Pub. at \$7.50.

Only \$3.20

**B1034. THROUGH ARCTIC HURRICANES.** By Hans G. Prager. A true story of the sea. A newspaperman and a cameraman, together, paint the vivid picture of one of the worst hurricanes ever encountered by the Fishery Protection Ship. They tell of the fleet doctor's hazardous trips by rubber dinghy to care for the sick; the wonderful Arctic skies aflame with Northern Lights; of the scientific equipment and data that make all this possible. Illustrated with photos, charts and maps. Pub. at \$5.00.

Only \$2.65

**B467. A COMPARATIVE PATHOLOGY OF THE NEUROSES.** By Ludwig Edelberg. By comparing the various neuroses, the author examines the problem of the choice of neurosis and the attitude of the total personality to various formations—neurotic symptoms, character traits, perversions. Pub. at \$4.50.

Only \$3.98

**B1056. BOOK OF BIRDS: THE FLAMINGOS OF THE CAMARQUE.** By E. Gallet. Printed on coated paper and illustrated with over 50 photographs of birds of the Flamingo family, this book will be a continual source of interest and pleasure for all bird lovers—child or adult. 7 1/2" x 9 1/2" in size, it makes a beautiful gift. Pub. at \$3.50.

Only \$1.98

**B547. FIELD BOOK OF INSECTS.** By Frank E. Lutz. All of the principal families, many of the genera and most of the commonly observed species of insects in the U.S. and Canada, recorded in a way to make recognition relatively easy. Much information regarding the habits of air, water, earth and underground insects. 100 plates illustrating almost 800 specimens, many in color.

\$4.50

**B1058. THE WORLD OF NIGHT.** By Lorus and Margery Milne. While the rest of the world sleeps, the life of the night creature begins. Birds, mammals, insects, reptiles—exacting the fascinating drama of the night. Pub. at \$3.75.

Only \$2.98

**B1047. FORBIDDEN LANDS.** By Gordon Cooper. The author describes the remote and exotic parts of the world which have not been tamed by our civilization. The strange wild tribes of North Burma, Formosa, Africa, Australia, New Guinea, etc. Illus. with photographs. Pub. at \$4.75.

Only \$3.98

**B1054. SWIFT IN THE NIGHT.** By William Byron Mowery. From autumn ramblings in the Catskills to remote Canadian Northlands reached only by plane, here are tales of adventure and discovery among the creatures of the great outdoors. Many illus. Pub. at \$3.75.

Only \$2.98

**B1065. EXPLORATION IN SCIENCE.** By Waldemar Kaemffert. A real find for anyone with an interest in science. Clear but concise explanations of atomic energy for bombs and fuel, space satellites, the weather, creation of life, power from the sun, the Cyclopaen eye of Palomar, etc. Indexed. Pub. at \$3.50.

Only \$3.20

**B1044. ALONG THE GREAT RIVERS.** By Gordon Cooper. The story of the great rivers of the world, Amazon, Mississippi, Amazon, St. Lawrence, Yangtze, Danube, etc. Many photos and appendix. Pub. at \$4.75.

Only \$3.60

**B137. LAND BIRDS OF AMERICA.** This comparatively beautiful book contains 100 full-color photographs and 50 in black-and-white by 30 of America's top photographers. Text by Robert Chushman Murphy and Dean Amadon. 11 1/2" x 11 1/2" in size. Pub. at \$12.50.

Only \$6.95

**4593. THE "THINK CLEARLY!" SERIES.** A 10-volume home-study course in logic and clear thinking showing how you can utilize these vital mental tools in everyday life. 10 soft-bound books cover scientific and efficient thinking, keys to rapid learning, etc. Nearly 500 pp. illus.

The entire set, special \$3.00

**B1059. ELEPHANTS AND IVORY.** By John Alfred Jordan. True tales of hunting and adventure in Africa. Thrill to the danger of hunting elephants, lions, buffalo, hippos, crocodiles. Read the stories of the gorillas who wept over their dead females, the wisdom of the elephants, and the strangeness of the leopards who walk like men. Pub. at \$3.50.

Only \$2.98

**B1058. DEAD TOWNS AND LIVING MEN.** By Sir Leonard Woolley. A world famous archaeologist and discoverer of the treasures of Ur, tells about his work in the Dead Cities of Egypt, Syria and Italy with emphasis on the mysteries of Arabia, and the hundreds of personalities like T. E. Lawrence, Ibrahim Pasha, Buraawi Aga, etc. 26 photographs. Pub. at \$6.00.

Only \$3.95

**B133. UNDERSTANDING SURGERY.** Ed. and compiled by Hubert H. Rothwell, M.D. This book explains to the lay reader clearly and in nontechnical terms the nature of many different kinds of surgical operations. It takes surgery out of the unknown and gives to the reader all the information he wants to know before undergoing surgery. Over 100 illustrations. Pub. at \$4.95.

Only \$4.50

**B1035. WHERE WINTER NEVER COMES.** By Marston Bates. The author of "The Nature of Natural History" tells of the beauty of life in the tropics as well as the possible difficulties. He describes places, climate, customs, food and social background. 35 illustrations. Pub. at \$3.50.

Only \$2.95

**B1081. THE USE OF HYPNOSIS IN PSYCHOPATHIA SEXUALIS.** By A. von Schrenck-Notzing, M.D. A fascinating and scientific examination of the use of hypnosis in relation to congenital and environmental abnormalities and sexual disorders. Pub. at \$6.00.

Only \$4.95

**B1078. DICTIONARY OF SOCIOLOGY.** Edited by Henry Pratt Fairchild. With the collaboration of one hundred eminent sociologists. A unique representation of all terms and concepts in the field. Invaluable for students, teachers, social workers, guidance counselors, etc. Pub. at \$6.00.

Only \$4.95

**B1066. SCIENCE AND PHILOSOPHY.** By Alfred North Whitehead. The 20th century has produced few men whose achievements in philosophy can surpass those of Alfred North Whitehead. Here, speaking with wisdom and humor, is a cross-section of a distinguished career; articles on immortality, the dangers of the past, science and the future, etc. Pub. at \$4.75.

Only \$3.20

**B135. THE COLUMBUS ATLAS.** By John Bartholomew. Prepared by one of the world's finest cartographers, this new regional atlas of the world contains 160 pages of fully colored maps and an index of nearly 50,000 place names, with populations, keyed to the maps. All the plates have been made by a highly intricate special color process, and their clarity, precision and complete accuracy make this atlas invaluable for everyone wishing to keep up with the complex affairs of today's world. 8 1/2" x 11". Pub. at \$10.00.

Only \$6.98

**7129. MAC MILLAN WILD FLOWER BOOK.** By Clarence J. Hylender. A valuable guide to Wild Flowers. Here is an art treasure to cherish through the years. It contains an outstanding collection of glorious water-color reproductions of 426 wild flowers, with concise commentary on each. Pub. at \$15.00.

Only \$8.95

**B397. ANOMALIES AND CURIOSITIES OF MEDICINE.** By George M. Gould, M.D., & Walter L. Pyle, M.D. An encyclopedic collection of rare and extraordinary cases, and of the most striking instances of abnormality in all branches of medicine and surgery, derived from an exhaustive research of medical literature from its origin to the present. Includes 1000 plates and 12 half-tone plates & 295 illustrations in the text. 982 pp. Pub. at \$12.50.

Only \$6.98

**B1043. A SEAL'S WORLD.** By Frank Stuart. Scientifically accurate, the account of the life and perilous adventure of a harp seal living in Arctic waters. This beautifully illustrated book is a heart-warming chronicle of Nature. Pub. at \$4.00.

Only \$2.98

**B1049. PURSUIT OF AN ISLAND.** By Julian Mockford. Lovers of the exotic and esoteric will thrill to the adventures of the author in his search for his "Isle of Happiness." Illustrated with photos. Pub. at \$3.00.

Only \$1.98

**B1032. A SHORT DICTIONARY OF MATHEMATICS.** By G. H. McDowell. All mathematical terms in arithmetic, algebra, geometry and trigonometry are explained in clear, intelligible language. For students, accountants, engineers and everyone who handles figures in his daily life. Diagrams throughout. Pub. at \$2.75.

Only \$2.35

**B168. THE BOOK OF THE MOUNTAINS.** Ed. by A. G. Spector. Here is a most splendid book, devoted entirely to those great ranges of snow-capped giants that straddle our globe; a volume revealing the total sense of the mountain world and man's relation to it. Here is mountain scenery in every aspect, as well as the wonder, secrets and beauty of mountains, in over 80 articles, 400 pages, and nearly 100 breathtaking illustrations. 7" x 10". Pub. at \$12.50.

Only \$7.95

**B1074. MATHEMATICS FOR THE LAYMAN.** By T. Ward Hill. A fascinating introduction to, and examination of, all basic mathematical principles. Pub. at \$4.75.

Only \$3.90

**B1037. NUCLEAR PHYSICS.** By W. Heisenberg. One of the outstanding physicists of our time tells the story of the views about atoms from antiquity to the development of the atomic bomb. Discusses molecules and atoms, Bohr's Theory, the periodic system and the extra nuclear structure of atoms, and then gets to the main subject of his work, radio activity, binding energy of Nuclei, Nuclear structure, transmutations, etc. With 18 half-tones and 34 line illustrations. Pub. at \$4.75.

Only \$3.75

**4786. IN SEARCH OF ADAM.** By Herbert Wendt. The greatest detective story of all time—the search for the truth about the origins of Man in the mists of the unrecorded past. Here, in one 550-page volume, is everything that is known about the kinship between humans and apes, the "missing link," and the mysterious lost races who may have been our first human ancestors. 48 pages of photos. Pub. at \$5.50.

Only \$5.00

**B1003. TRAINING DOGS.** By Konrad Most. This famous work by the international authority has long been accepted as standard for both professional trainers and the dog owner. Deals in detail with Theory of Training, as well as Practical Training. Covers such aspects as Action, Abstinence, Compulsion, Inducements, Down and Recall, Defense, Water Work, etc. Illustrated throughout with photographs and drawings. Pub. at \$4.75.

Only \$3.40

**B1069. ATOMS FOR PEACE.** By David C. Woodbury. Everything you want to know about atomic energy—What Is Energy?—Experiments—Atomic Energy Is Born—How the Bomb Works—What Is a Reactor?—New Energy for Underdeveloped Nations—Atomic Power in Space, At Sea, On Wheels—Radiation and Cancer, etc. Indexed. Pub. at \$5.50.

Only \$3.20

**B1038. PRESENT-DAY PSYCHOLOGY.** By A. A. Roback. The most comprehensive survey and definitive work, 40 original contributions embracing practically the whole range of psychology. Each chapter written by an expert in his field, expressly for this book. Over 1000 pages, bibliographies, diagrams, indexes, illustrations. Pub. at \$12.00.

Only \$6.95

**B1067. MEN, ROCKETS AND SPACE RATS.** By Lloyd Allan. Here is the story of our achievements in the field of Rockets and Space Travel and the men who are doing the work. Covers every phase, including our aim of reaching the moon. Illus. with photographs. With a foreword by General T. S. Power, Commander Air Research and Development Command. Pub. at \$5.95.

Only \$4.50

**B1082. CONCISE ENCYCLOPEDIA OF ATOMIC ENERGY.** Edited by Frank G. A. A comprehensive collection of brief explanations and definitions of concepts and terms in the field of Nuclear Physics and Atomic Energy. Pub. at \$7.50.

Only \$3.95

**B1059. THE ATLANTIC ISLANDS.** By Kenneth Williamson. First comprehensive book on the unknown Faroe Islands, off the north coast of England. Wonderful information on flora and fauna, folklore and history of the islands. Pub. at \$4.50.

Only \$2.95

**B1033. EVEREST: FROM THE FIRST ATTEMPT TO THE FINAL VICTORY.** By Micheline Morin. Readers of all ages will thrill to this detailed account of the expedition of 1921, and the conquering of the highest mountain in the world. Illustrated by A. J. Veilhan. 64 lithographs and maps (12 in full color). Pub. at \$4.00.

Only \$2.95

**B230. NEW WAYS TO BETTER SIGHT.** By Dr. Harris Gruman. Everything you need to know about your eyesight, its improvement and retention. Latest information on improving sight after forty, the visual effects of television, eye exercises, etc. Illus. Pub. at \$3.00.

Only \$1.98

**B1036. REFLECTIONS OF A PHYSICIST.** By P. W. Bridgman. This is the enlarged edition. Contains the bulk of non-technical writing of Dr. Bridgman, including some material published for the first time. Pub. at \$6.00.

Only \$3.95

OLIVER GARFIELD COMPANY, INCORPORATED, Dept. SL-29-D, 108 East 16th Street, New York 3, N. Y.

Please send me Postpaid the titles I have circled (add 35¢ postage and handling on orders under \$5.00):

B1039 — B536 — B1040 — B1068 — B1034 — B467 — B1056 — B947 — B1055 — B1047 — B1064 — B1005 — B1044 — B137 — 4563  
B1063 — B1058 — B133 — B1035 — B1081 — B1076 — B1066 — B135 — 7129 — B397 — B1043 — B1049 — B1032 — B168 — B1074  
B1037 — 4786 — B1003 — B1069 — B1038 — B1067 — B1062 — B1059 — B1033 — B230 — B1036

NAME..... Address..... City..... State.....

Amount Enclosed..... (Minimum Order \$3.00) Do NOT send Cash—Use Check or M.O.

## OCEANOGRAPHY

# Oceans Must Be Studied

**Academy Committee on Oceanography recommends doubling of present deep-sea research efforts to add to man's "meager" knowledge of the oceans.**

► **FAILURE TO DOUBLE** the intensity of deep-sea research in this country within the next ten years will lead to serious economic, political and military hazards.

This warning is contained in a report by the Committee on Oceanography of the National Academy of Sciences-National Research Council.

Doubling of the nation's oceanographic effort within this period, the report said, would cost more than \$650,000,000 over the present level of support.

The Committee is supported by the U. S. Atomic Energy Commission, the Bureau of Commercial Fisheries, the National Science Foundation and the Office of Naval Research. Its chairman is Dr. Harrison Brown of the California Institute of Technology, Pasadena.

The three main general recommendations contained in the report are that:

1. The Government expand its support of the marine sciences at a rate that "will result in at least a doubling of basic research activity" during the next ten years.

2. The increase in support of basic research should be accompanied by a ten-year program of ocean-wide surveys, which would require a two-fold expansion of the present surveying effort.

3. The Government should expand considerably its support of the applied marine sciences, particularly in the areas of military defense, marine resources and marine radioactivity.

Man's knowledge of the seas is meager, the report stated, when compared to the oceans' importance to him, and progress in the marine sciences in the United States has been slow compared to other areas of scientific endeavor.

The committee stressed that it considered its recommendations minimal ones.

"Action on a scale appreciably less than that recommended," it said, "will jeopardize the position of oceanography in the United States relative to the position of the science in other major nations, thereby accentuating serious military and political dangers, and placing the nation at a disadvantage in the future use of resources of the sea."

Increased research effort, said the report, could help provide answers to how many fish there are in the sea, how they are distributed and what can be done to increase their numbers. It might then be possible to solve some of the acute problems involved in providing animal protein food for the growing number of underfed people in the world.

Research could also result in development of the oceans' vast mineral and food resources, more accurate prediction and possible control of climate, and the improvement of military defenses against surprise

attacks by missile-launching submarines.

Among the report's specific recommendations were the following:

1. Construction of 70 research ships of 500 to 2,200 tons displacement between 1960 and 1970.

2. Development of manned submersible devices that can operate on the bottom of most oceans; mid-ocean research platforms; deep-sea buoys, and ice-breaking submarines.

3. Selection of one agency to have overall responsibility and authority for regulating introduction of radioactive materials into the oceans, and another agency to monitor such introduction.

4. International cooperation through financial support to the Special Committee on Oceanic Research of the International Council of Scientific Unions, and participation in the proposed year-long study of the Indian Ocean.

*Science News Letter, February 28, 1959*

## CLIMATOLOGY

## World Warming Trend Confirmed in Antarctica

► **TEMPERATURE DATA** obtained in Antarctica during the International Geophysical Year seem to confirm the world's long-term warming trend.

Extensive temperature records were collected on the "white" continent during 1957 and 1958 by U. S. Weather Bureau

meteorologists and weathermen from other countries. These records are consistent with the theory that the entire world is slowly getting warmer, Dr. H. E. Landsberg of the Bureau's office of climatology has found.

Concerning the north polar regions, he said, physical evidence and temperature trends both indicate warming. Glaciers are retreating in Alaska and the harbor of Spitsbergen is open twice as long each year as in 1912, for example.

Dr. Landsberg said the warming trend, thought to amount to some two or three degrees each century, started about 1900. Cause of the warming is unknown, but one theory is that a blanket of carbon dioxide given off by the burning of coal and oil retards radiation of heat by the earth. Another suggested explanation is an increase in the sun's radiation.

*Science News Letter, February 28, 1959*

## MEDICINE

## Space Helmet Used in Study of Fatty Acids

► **SPACE HELMETS** are helping doctors learn more about the body's fuel system.

Drs. Josiah Brown and Leslie R. Bennett of the University of California at Los Angeles Medical School have used such a device in investigating the way the body utilizes fatty acids.

Fatty acids have been recognized only recently as perhaps the major body fuel in the fasting state, the scientists said. Little is known about how the body burns this energy source.

Fatty acids tagged with radioactive carbon are injected into human subjects. A "space helmet" is placed over the subject's head so that his exhaled breath is captured and carried to a special machine that measures the amount of radioactive carbon exhaled to indicate the rate at which fuel is being burned.

*Science News Letter, February 28, 1959*



**FOUR-ENGINE JET**—The nation's first small four-engine jet airplane is designed to cruise at speeds of over 550 miles per hour. It has a normal range of 2,335 miles in still air with normal fuel reserves and was built by McDonnell Aircraft Corporation.

# SCIENTIA INTERNATIONAL

## NOVAS DEL MENSE IN INTERLINGUA

► **Statistica de Population.**—Depost 1950, le population del Statos Unite ha crescite per 24,500,000 capites. In 1958 le augmento esseva 2,860,000. Le total es hodie 175,660,000. Assi le population statunitense cresce per un factor de 1,7 pro cento per anno.

► **Recercas de Cancere.**—Dr. R. McMurdy, medico de sanitate public in le contado de Norfolk in Anglaterra, opina que le governamentos del mundo hesita de acceptar le conclusiones confirmative de 19 extense investigationes international del question de si o non il existe un relation causal inter le habitude del fumar e le incidentia de cancro pulmonar, exclusivamente a causa del reventos finanziari qui es producite per le taxas de tabaco. Attribuer le correlation positive inter le consumption de tabaco e le occurrentia de cancro pulmonar a simplemente un coincidentia es—secundo Dr. McMurdy—exactemente como si on insisteva que le association inter le morte de un individuo e le facto que ille ha hebite acido prussic es plus tosto un association de coincidentia que un association de causa e effecto. Dr. McMurdy signala que le taxas de tabaco in Anglaterra amonta annualmente a vinti milliardos dollars (plus que le costo total del famose servicio de sanitate public in ille pais). Dr. McMurdy etiam signala que solmente tres epidemias in le historia del humanitate—le epidemias de peste in 1348 e 1665 e le epidemia de influenza in 1918—ha causate (temporariamente) un mortalitate plus grande que le mortalitate causate (permanentemente) per cancro pulmonar.

► **Technica Medical.**—Chirugos del Universitate Melbourne experimenta con un camera de television que es satis mure pro esser inglutite per un patiente. Le prisa del camera pote esser projicte con un magnification de 30 a 40 vices le dimensiones del tubo de imagine. Certe elementos del apparatus es importate ab Germania. On se promitte ab illo grande avantamientos in le diagnose de cancro e de altere morbos interne. Le Consilio Australian pro le Lucta Contra le Cancere ha pro 1959 un budget de subventiones amontante a un total de \$225,000. Plus que un tertio de iste total—\$80,000—va esser usate pro perfectionar le camera de television intracavitari.

► **Scientia General.**—Annualmente le "Cerca de Talentos Scientific" del Fundation Educational Westinghouse (conducite per "Clubs de Scientia in America," un del activitates de "Science Service") resulta in le congregation in Washington de 40 promittente scholares de schola secundari, qui es le finalistas in le competition pro stipendios de un valor total de \$44,250. Iste 40 finalistas es scholite ex 400 semi-finalistas, le quales—de lor parte—es le crema de un massa de plure milles scholares initialmente participante in le concurso. A parte le examines requirite, un satis extense documentation de ricerca individual debe esser submitte per omne concurrente. Multes inter le labores submitte per iste adolescentes de inter 15 e 17 annos de etate e de ambe sexos reflecte un astonante maturitate non solmente technic e scientific sed etiam critic e mesmo philosophic. In 1959, un del finalistas in lo que es le "Decimo Octavo Cerca Annual de Talentos Scientific"—Joseph P. Vajk de Princeton Junction in New Jersey—ha redigite un articulo critic in que ille presenta le these que in le historia del vita terrestre, periodos de evolution accelerata esseva le resultado de augmentos de radioactivitate directemente responsabile pro le occurrentia de plus numerose e plus marcate mutationes. Vajk crede que le effecto del augmento de radioactivitate in nostre ambiente va resultar in le

evolution de un specie de super-homine nietzschean, e ille signala que le precio a pagar pro un tal progresso va esser le production (e subsequentemente le destruction) de innumerabile mutationes (human e animal) de viabilitate inferior. Vajk comprende que omne isto pone un problema ethic de grande serioitate, sed ille es satis modeste—de novo un signo de maturitate—pro non voler occupar se de ille problema al tempore presente.

► **Aeronautica.**—Al aerodromo London, aves—e specificamente laros—constitue un ver plaga: illos se, captiva in le propellers o es sucite a in le motores a reaction. Iste secunde possibilitate es particularmente periculose, e infelicemente le aves pretere aviones a reaction proque illos ha discoperite que istos emana un confortabile calor.

► **Agricultura.**—Promittente successos es reportate ab California in le "guerra bacteriologic" contra insectos de nocivitate agricole. On labora con *Bacillus thuringiensis*, que es non solmente efficacissime contra le insectos, que illo affice, illo etiam pare esser multo specific, i.e., illo destrue varie insectos de character nocive e affice non del toto alteres que es utile. Il pare que le infection per *B. thuringiensis* resulta in le formation de un toxina crystallin in le organos gastric del insectos e que iste toxina es le causa immediate del morte del insectos. On va tentar le synthese laboratorial del toxina, proque illo representarea un insecticida vermente ideal. Usque nunc nulle disveloppamento de resistentia contra illo ha essite notate in ulle del insectos studiate. Le uso de *B. thuringiensis* como insecticida ha essite sanctionate per le autoritates, sed illo non essera disponibile commercialmente ante le anno 1960.

► **Astronautica.**—Le ballonistas del marina statunitense que ascendeva in un ballon de ricerca in plen lumine diurne a un altor de plus que 25 kilometros ha reportate que illac le celo in supra de illes esseva completamente nigre e que nulle corpore celeste esseva visibile in illo. On ha calculate que a un altor de alcun kilometros de plus, plure planetas e astros devenira discernibile pro quicunque sape ubi illos es situate. A un altor de 100 km, le celo—mesmo a mediedie—essera perseminate de astros, plus clar e bellemente que le plus clar e belle celo nocturne unquam vidite ab le superficie del terra.

► **Genetica.**—Duo recreatores al britannic Collegio Veterinari Regal ha studiate le fenomeno del preferentias de gusto in vitellos. Per usar in lor studios vitellos que esseva geminos identic, le recreatores ha trovate que preferentias de gusto individual es—al minus in vitellos—un fenomeno hereditari que es quasi completamente independente de influentias del ambiente. Un tracto commun de omne le vitellos esseva que illos prefereva le gusto dulce de glucosa a gustos salin, acide, o amar. Sed—e isto es ancora plus interessante—omne le vitellos rejeciva omne gustos de alta intensitate, mesmo le gusto dulce de glucosa.

► **Glaciologia.**—Bullas de aere includite in le glacia arctic e antarctic in stratos de varie etates va esser analysate con respecto a lor contento de radioactivitate, con le objectivo de determinar si le radioactivitate del atmosfera terrestre ha essite augmentate per nostre experimentos con explosiones atomic.

► **Geophysica.**—Le studio del orbita de Vanguard I demonstra que le terra ha le forma de un pira.

## GENERAL SCIENCE

### Reading Interlingua

► **YOU CAN READ Interlingua** if you had no more than one semester of high school French or Spanish or Latin and flunked it. You can read and understand a great deal of it even if you had never had contact with any foreign language.

Send this page to an acquaintance abroad and tell him that he can get additional information about Interlingua from Alexander Gode, Science Service's Interlingua Division, 80 E. 11th St., New York 3, N. Y.

Financial contributions to the Interlingua program are needed.

Science News Letter, February 28, 1959

## SCIENCE NEWS LETTER

VOL. 75 FEBRUARY 28, 1959 NO. 9

Edited by WATSON DAVIS

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N.W., Washington 6, D.C., NORTH 7-2255. Cable Address: SCIENSERV.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; ten or more copies in one package to one address, 7½ cents per copy per week; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright © 1959 by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicated services issued by Science Service. Science Service also publishes CHEMISTRY (eight times a year) and THINGS of Science (monthly).

Printed in U.S.A. Second class postage paid at Washington, D. C. Established in mimeograph form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index. Member Audit Bureau of Circulation.



### SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: William W. Rubey, U. S. Geological Survey; Wallace R. Brode, National Bureau of Standards; Douglas Whitaker, Rockefeller Institute for Medical Research. Nominated by the National Academy of Sciences: Edward U. Condon, Washington University; Harlow Shapley, Harvard College Observatory; Philip Bard, Johns Hopkins University. Nominated by the National Research Council: I. I. Rabi, Columbia University; Leonard Carmichael, Smithsonian Institution; John R. Dunning, Columbia University. Nominated by the Journalistic Profession: O. W. Riegel, Washington and Lee University; Lee Mills, Detroit Free Press. Nominated by the Scripps Estate: Edward J. Maeman, Memphis Press-Scimitar; Frank Ford, Washington, D. C.; Charles E. Scripps, Cincinnati, Ohio.

Officers—President: Leonard Carmichael; Vice President and Chairman of Executive Committee: Charles E. Scripps; Treasurer: Wallace R. Brode; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Helen Buehl, Ann Ewing, Richard Little, Allen Lang, Jane Marye, Elisabeth Mitchell, Ralph Segman, Benita Tall, Marjorie Van de Water, Howard Simons (on Nieman Fellowship Leave). Science Youth Division: Joseph H. Kraus, Dorothy Schriver, Shirley Moore. Photography: Fremont Davis. Production: Priscilla Howe, Marcia Nelson. Syndicate Sales: Hallie Jenkins. Interlingua Division in New York: Alexander Gode, 80 E. 11th St., Gramercy 3-5410. Advertising Manager: Fred A. Moulton, ME1ropolitan 8-2562.

## CARDIOLOGY

# Giraffe Aids Heart Study

A study of the neck of a giraffe has revealed a mechanism that alleviates the necessary high blood pressure that boosts blood uphill to the animal's brain.

► THE LONG NECK of the giraffe is now the focal point in a study of the mechanism of high blood pressure.

The giraffe takes top honors for having the highest blood pressure readings, according to Dr. Robert H. Goetz of the Albert Einstein College of Medicine in New York.

The African animal has exhibited pressures ranging from 282/158 to 353/300 to bridge the length blood must travel uphill from the heart to the brain.

Dr. Goetz, working with a grant from the New York Heart Association, observed that when the giraffe stoops to drink, it lowers its head many feet, increasing the pressure even further. This pressure should cause the blood vessels to burst.

When the giraffe raises its head after drinking, it describes a semicircle 20 feet in diameter. If a human were to imitate this motion, he would probably faint.

Observations of these behaviors of the giraffe led to the suggestion that special mechanisms must be present in the neck of the giraffe. Dr. Goetz has now confirmed the fact that the animals have a "power-

transformer" to protect the brain from forceful surges of blood.

The transformer is known as the rete mirabile caroticum, or wonder-net of the carotid, the main artery to the brain. The transformer interrupts the blood flow through this main artery, breaking it up into fine streams that finally reach the brain without the damaging pressure behind them.

Inspection of the blood vessels themselves did not reveal any evidence that the high blood pressure in the giraffe causes arteriosclerotic changes. All of the blood vessels were normal.

Dr. Goetz found that giraffes also have an extremely high red blood cell count, near 12,000,000. It is known that natives of high altitudes, where the oxygen content of the air is lower, also have high cell counts.

The body compensates for less oxygen by producing more blood cells to carry it to needy body cells. Therefore, the high count in the giraffe might be due to a limited supply of oxygen, he postulated.

The oxygen saturation in the blood of the

giraffe was found to be only between 90% and 93% and due to a dead space in the trachea because of the length of the animal's neck which diluted the oxygen content of breathed air.

Science News Letter, February 28, 1959

## MEDICINE

## Doctors Stumble Onto Aid for Gout Sufferers

► SCIENTISTS have stumbled upon a new use for a well-known drug that may benefit 300,000 Americans.

The drug is zoxazolamine, a muscle relaxant. Now it is being considered for the treatment of gout.

Dr. J. J. Burns of the National Heart Institute, Drs. T. F. Yu and Alexander Gutman of Mount Sinai Hospital and Dr. Lawrence Berger of Goldwater Memorial Hospital in New York were studying the fate of this drug in the body when they noticed large amounts of a white crystalline compound accumulating in the urine of patients receiving zoxazolamine as a muscle relaxant.

During gouty attacks, uric acid builds up in the blood and tissue, crystallizing in cartilage at the ends of bones.

The crystals turned out to be uric acid, the substance that piles up into lumps. The men presumably have found a chemical that will remove uric acid and help reduce the size of these lumps.

Gout is one of the rheumatic diseases that has plagued man for more than 4,000 years. It affects about 300,000 Americans today.

When the investigators tried zoxazolamine on several gouty patients, they noticed that it appeared to be a more powerful eliminator of uric acid than any other substance. A larger clinical test of the drug is now under way.

Science News Letter, February 28, 1959

## MEDICINE

## Cancer Takes Annual Toll Of 4,000 Children

► CANCER TAKES the lives of about 4,000 children under 15 years of age each year.

Within the age group of from five to 14, cancer takes more lives in the U. S. than any other disease. The highest death rate from cancer in childhood occurs among preschool youngsters, rising gradually to a peak between ages three and four, statisticians of the Metropolitan Life Insurance Company have calculated.

Leukemia, cancer of the blood, is the most common form of malignancy in children. It is responsible for nearly half the cancer death toll at ages under 15.

Cancers of the nervous system, chiefly the brain, constitute the second most frequent category and account for about one-fifth of all deaths from cancer in childhood. Other fairly frequent sites of childhood cancer are the kidney and bone.

Science News Letter, February 28, 1959



**GIRAFFE'S TRANSFORMER**—Dr. Robert H. Goetz, director of experimental surgery at the Albert Einstein College of Medicine, points to the rete mirabile caroticum, or power transformer, that breaks the force behind blood that travels uphill eight to 10 feet to the animal's brain.



### The TREE of MATHEMATICS

—written by twenty men masters in their special fields and well acquainted with the whole, is a volume of singular interest and wide usefulness. Its objective is not routine drill or manipulation but understanding.

"This is the one volume for the philosopher who is only a mediocre mathematician; a valuable text for certain courses; and an indispensable book for those who work in a close way with mathematicians." From "Main Currents in Modern Thought."

Here in 420 pages are the epitomes of 27 courses and a valuable index for reference work. The price is \$6.00 del'd; \$5.50 each with order or \$5.00 with this ad clipped.

The Digest Press  
Dept. C, Pacoima, Calif.

## GEOPHYSICS

# Weather Satellite Orbiting

United States launches the first satellite equipped to scan the earth's cloud cover. The battery power for transmitting weather information is expected to last into early March.

### See Front Cover

► THE UNITED STATES has launched into orbit the first baby weather station in space. It was hurled into its earth-circling path at 10:55 a.m. Feb. 17, and its predicted lifetime is several decades.

The batteries powering the radio transmitting weather information, however, have only a two-week lifetime. The 20-inch, 21.5-pound satellite was one unit in the Navy's troubled-plagued Project Vanguard, originally scheduled to launch several satellites during the International Geophysical Year that ended last Dec. 31. It is now a National Aeronautics and Space Administration project.

The satellite's scientific equipment consists of two photocells designed to provide the first pictures of earth's cloud cover. The photocells are mounted behind circular, gridded windows that project from opposite sides of the satellite.

The two small optical systems, weighing 3½ ounces each, are shown in the photograph on the cover of this week's SCIENCE NEWS LETTER. They were developed and built by the Perkin-Elmer Corporation, Norwalk, Conn.

The photoelectric cells project diametrically opposite each other at 45 degrees from the satellite's stable spin axis. Only one photocell sees the cloud's and earth's surface reflectivity at any time.

The experiment represents a first step toward obtaining continuous weather mapping of global scope.

The satellite is tracked and interrogated by NASA's worldwide Minitrack network. The U. S. Army Signal Research and Development Laboratory, Fort Monmouth, N. J., developed the cloud cover instrumentation package in the satellite, the shell of which was prepared by NASA's Vanguard Division.

Clouds, sea and land masses have different qualities of reflection that can be translated into electrical impulses. As the satellite's photocells sweep the sunlit side of the earth, the intensities of sunlight reflected from the cloud areas, about 80%, differ from the land, from 15% to 20%, and sea, some five percent. These reflections, converted to electrical signals, are stored in a tape recorder within the satellite for telemetering to ground stations, once per orbit, in compressed form when the satellite is interrogated.

The satellite criss-crosses the equator between latitudes of 35 degrees north and 35 degrees south.

The satellite's 24-hour sweep reveals cloud cover data over about 25% of the earth's sunlit surface in 600-mile-wide strips.

A 108.03 megacycle transmitter to send

cloud cover data at one watt and a 108.00 megacycle transmitter to send Minitrack tracking information at 10 milliwatts are included in the package. The 108.00 megacycle transmitter carries a temperature-sensitive crystal that reveals the temperature within the scientific payload.

Solar cells, tucked behind the three-inch windows, operate a switch that halts the tape on which cloud cover information is recorded when the satellite is in the shadow of the earth, thus conserving battery power. The tape is reactivated by the same means.

When the satellite passes over the appropriate tracking station, depending upon the satellite's location at the time, it is interrogated from the ground and transmits its data in one 60-second burst.

The data already telemetered to the ground are erased from the tape. A trigger resets the system to begin recording again.

The cloud cover data from each global circuit are stored on a separate tape at the ground station that interrogates the satellite and the tapes then shipped to Fort Monmouth.

The Vanguard 50-pound third-stage rocket casing was also placed in orbit. It has been treated with a special coating for optical tracking.

The satellite's shiny shell consists of micro-thin layers of magnesium, zinc, copper, silver, gold, chromium, silicon-monoxide, aluminum and a final outside coating of silicon-monoxide. Total thickness of the highly-polished, electroplated shell is .0015 of an inch.

The tapes containing the cloud cover data are fed into an electronic complex at Fort Monmouth that transforms them into crude photographs. These film strips, in which one earth circuit is equal to 35 or 40 feet of film, are then fitted together in the manner of aerial photographs.

The system whereby the data are converted to black and white photographic strips includes an FR 100 tape recorder, analogue computer, data reduction unit, oscilloscope and a 35 mm camera.

Initial calculations showed the satellite's perigee was 335 miles, its apogee, 2,050 miles. At speeds ranging from 14,000 to 18,000 miles an hour, the weather station circles the earth once every 126 minutes.

Although its popular name is Vanguard II, the satellite's official designation is 1959 Alpha I.

The second of the three remaining Vanguard satellites still to be launched will also contain weather reporting devices. They will measure the earth's radiation balance, the difference between the amount of the sun's radiation hitting the planet and that re-radiated into space.

Science News Letter, February 28, 1959

**FREE!**  
**LAFAYETTE'S**  
**1959**  
**CATALOG**

**260 GIANT-SIZED PAGES**

**CONTAINS**  
HUNDREDS OF EXCLUSIVE  
LAFAYETTE ITEMS NOT IN  
ANY OTHER CATALOG OR  
AVAILABLE FROM ANY  
OTHER SOURCE —  
SEND FOR YOUR COPY NOW!

See the newest and finest  
in Stereo Tuners, Amplifiers,  
Cartridges and Music Systems.

\* TAPE REPRODUCERS \* PUBLIC ADDRESS  
SYSTEMS \* AMATEUR EQUIPMENT  
\* INDUSTRIAL SUPPLIES \* RADIO & TV  
TUBES AND PARTS \* INSTRUMENTS  
\* TELESCOPES, BINOCULARS, MICRO-  
SCOPES & CAMERAS

Everything In  
Electronics

The  
Complete Catalog  
Featuring The Best  
Values Obtainable

**LEADERS**  
IN HI-FI

**OUR**  
**38th**  
**YEAR**

The most complete electronic supply  
catalog crammed full of everything  
electronic at our customary down-to-  
earth money-saving prices.

The largest selection of hi-fi com-  
ponents and systems; greatest savings  
on Lafayette endorsed "best-buy"  
complete systems.

**EASY PAY TERMS AVAILABLE —**  
**10% DOWN — UP TO 18 MONTHS TO PAY**  
**CUT OUT AND PASTE ON POST CARD**

**Lafayette Radio**  
P.O. Box 511  
JAMAICA 31 N.Y.  
DEPT. 8W 228

☐ Send FREE LAFAYETTE Catalog 590

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## ENGINEERING

# Water for the Negev

By BENITA TALL  
From Tel Aviv, Israel

► THE PIONEER FRONTIER town of Eilat where, so the story, goes King Solomon met the Queen of Sheba, recently was the site of another international meeting, between American and Israeli engineering.

If the meeting is as successful as James G. Scott, geologist and mining engineer from the United States, expects it to be, a desert may be opened to agriculture and industrial development.

Mr. Scott is in Eilat as a technical adviser, or "trouble shooter" as he calls it, overseeing the drilling of a well that could bring in some 300 gallons of water per minute 24 hours a day to thirsty Eilat.

Drilling several hundred feet through granite, porphyry, basalt and similar rock, the engineers have already reached some water. However, they will continue to drill until they reach the expected fracture in the earth's crust that will yield the 300-gallon goal.

It is this fracture, found in rock or mountainous areas, that can hold important quantities of water, geological evidence shows. Going through solid granite, for example, is a relatively recent method of drilling for water and is in contrast to the

usual "lenticular method." Instead of drilling for water from a flat, widespread area, engineers take advantage of open underground fractures in the earth's crust caused millions of years ago in the growing-pains stage of the young planet.

The method, developed by Stephan Riess of Santa Barbara, Calif., has been successful in several places in the United States. One well in Santiago County, Calif., Mr. Scott said, was drilled some 850 feet into solid granite. It has been producing 300 gallons a minute, 24 hours a day, for three years.

Depending on the drilling and the structure of the soil and rock, Mr. Scott said, this method can provide wells that produce more than 1,000 gallons a minute.

As yet, obtaining fresh water by desalination, the "obvious" way for a seaport such as Eilat, is still too expensive and impractical.

Since much of the Negev area, some 4,716 square miles in area or one half of all Israel, is a wilderness of rock and sandy soil, the drilling is being watched carefully by the Israeli Government and several other countries with water problems. The success of the well at Eilat, situated at one end of this desert region, could mean a new life for millions in the deserts of the world.

Science News Letter, February 28, 1959

## NATURAL RESOURCES

# Food Crisis Growing

► RESEARCH ON A SCALE comparable to that of the current missile and satellite programs is needed to head off a foreseeable crisis in the world's food supply.

Dr. Archibald T. McPherson, associate director for engineering at the National Bureau of Standards, told the Washington Academy of Sciences that one hope for meeting this crisis lies with the synthetic chemist.

Discoveries by these scientists already have led to synthesis of vitamins, amino acids, flavors and food colorings from such abundant raw materials as coal, limestone, petroleum, atmospheric nitrogen and water.

Other syntheses also are freeing farmland for purely food crops. For instance, the land required to grow the rubber now produced synthetically would be enough cropland to feed 13,000,000 people, he said. Even so, 12% of present farm crops are not intended for food uses.

If all the waste paper in the U. S. were preserved in good condition, it could be converted chemically into enough sugar to feed the nation, he said. Although not now economical, this is the sort of project that could help relieve the population explosion in such countries as Africa, India and China.

"There is every indication that a new era of civilization is emerging in which man will produce an increasing proportion of

his food by direct manufacture instead of depending on less efficient production by plants and animals," he said.

Persons on China's mainland take in about 1,820 calories a day in food. Those in India take in about 2,000 calories a day. The average American has a daily caloric intake of about 3,070. Even so, American hogs are eating better than their owners, since they are fed commercially profitable dietary food supplements resulting from synthetic chemists' work.

Science News Letter, February 28, 1959

## PHARMACOLOGY

# Some Inhalers Sold Only on Prescription

► SOME NASAL inhalers can now be purchased at the drug counter by prescription only.

The Food and Drug Administration has clamped down on the freely accessible inhalers that contain amphetamine. Some persons were found to be purchasing inhalers to get at the amphetamine inside. Amphetamine is a known narcotic, and amphetamine tablets are sold on prescription only.

Nasal inhalers containing other drugs are not affected by this ruling.

Science News Letter, February 28, 1959



**MASK FOR SURGERY**—This durable plastic mask is washable and reusable its developers, Drs. Claude R. Hitchcock and Joseph Kiser of the Minneapolis General Hospital Research Foundation, Inc., said. (See SNL, Dec. 27, 1958, p. 410.)

## DENTISTRY

# Dental Kit Makes Dentist's Visit Possible

► NEW EQUIPMENT is being manufactured that will make a home visit by the dentist entirely possible. The U. S. Public Health Service will unveil a portable dental kit at a state and territorial dental directors conference in Washington, in April.

At that time, more than 60 dentists will be shown the sample unit. It consists of two 45-pound cases. One kit contains an electric drill that will work on ordinary household current. The dentist will also have a 16-sectioned tray for tools, three levels of drawers, compressed air and a hand-operated water pump.

One unit will serve as a worktable and instrument case while the other will serve as a compressor water tank assembly. The sample kit is being manufactured by Ritter Company, Inc., Rochester, N. Y.

The main demand for such a kit is expected to come from nursing homes, hospitals, homes for the aged, state and local health departments and voluntary health organizations. But it is entirely possible that private dentists will invest in such equipment and begin making house calls in the same manner that the doctor occasionally makes a house call with his little black bag.

Rough estimates of the cost of this new dental kit range from \$1,000 to \$1,500.

There is a severe lack of dental services to many patients in nursing homes and homes for the aged. This is also true of many tuberculosis, chronic disease and long-term hospitals where it is very difficult to transport patients to the dentist's office.

Science News Letter, February 28, 1959

## MISSILES AND ROCKETS

## H-Bomb Fusion Power May Drive 1983's Rocket

► THE REACTION of the hydrogen bomb may drive rockets deep into space in 25 years, a space expert reported to the Institute of the Aeronautical Sciences meeting in New York.

Dr. Thomas F. Dixon, chief engineer of the Rocketdyne division of North American Aviation, Inc., said future interplanetary exploration will demand propulsion systems capable of squeezing more power from modest amounts of fuel.

This makes a thermonuclear engine, using the fusion principle of the H-bomb, highly attractive. He said the thermonuclear engine may be in early development stages in about 25 years if controlled fusion is realized in the near future.

Several approaches can be made to thermonuclear propulsion, he said. In the "plasma system," shock waves could be used to excite deuterium or tritium to its ionization potential. Such an engine could be self-operative and would require minimum electromagnetic energy from without. This is because the useful power would reside in the charged particles contained in the magnetic field.

Another possible system could be one in which a pseudo-neutral gas plasma would be created at temperatures between 20,000 and 50,000 degrees Fahrenheit. Here, flow would be caused by momentum possessed by the plasma. A system of this sort would be desirable if a very lightweight powerplant could be produced for generating high electrical currents and/or voltages.

In the "push-pull" system, fission plasma is made critical in a pulsating fashion so that high temperatures and pressures are generated for short durations. While tolerable average temperatures and pressures are maintained, energy is generated for heating a secondary propellant gas.

Too little is known of the problems involved with the development of these systems, said Dr. Dixon, to make their development more than speculative. However, he said, in 25 years all of these things, plus advances undreamed of, will have come to pass.

Science News Letter, February 28, 1959

## ACOUSTICS

## Increasing Noise Threat To Life, Says Physicist

► ALTHOUGH noise has distressed the human race throughout history, the increasing decibels of modern civilization may actually threaten life, in the opinion of Dr. Vern O. Knudsen, professor of physics at the University of California at Los Angeles and a leading acoustical expert.

"Even the ancient Romans railed against the donkey-drawn carts rumbling to market over cobbled roads," he said. "But while the Roman urbanite only lost his early morning sleep, today's noise level also frays man's nerves, impairs his hearing, and may even prove fatal in the future."

"During the past 30 years, the loudest noises to which man is exposed have increased from about 120 to 150 decibels, an average increase of one decibel a year," Dr. Knudsen said.

"A level of 160 decibels is lethal for many animals. Furries and rats exposed to such intense sounds perish from the resulting rise of body temperature. And with the advent of the jet age, we face another noise nuisance, the sonic booms of airplanes."

Future home design must fight the noise danger through sound-insulation measures, installation of quieter motors, fans, and electromechanical generators, and control of reverberation and room resonance, Dr. Knudsen said.

Science News Letter, February 28, 1959

## AERO-MEDICINE

## 100 Top Scientists Attack Man-In-Space Problems

► ONE HUNDRED of America's top scientists are about to consider how man can take to space and live.

A new committee will investigate such problems as:

How men can exist on Mars once space vehicles get there.

How a little biological world can be created in a space capsule, maintaining human life safely.

How spacemen will react to long journeys during which they will be subject to great psychological stress and deprived of sight and hearing.

How poison wastes that humans generate can be used or disposed of in space.

How radiation in space will affect spacemen.

The new group is known as the Armed Forces-National Research Council Committee on Bio-Astronautics.

Formed at the request of the Air Force, Army and Navy, and given equal financial support by each of the services, the committee will cooperate with other related governmental space-biology committees to minimize duplication of research, exchange information, establish liaison between investigators with allied interests, analyze the total situation and serve periodically as a scientific forum.

Dr. Sam F. Seeley, acting executive secretary, said that 66 members have already been chosen. An executive council, functioning since last November, consists of one representative from each armed service, six scientists appointed by Dr. Detlev W. Bronk, president of the National Academy of Sciences-National Research Council, and three ex-officio members.

The committee's interests are to be far broader than merely the effects on man of space flight. They will include coordinating development of miniature instruments for recording man's reaction to space flight, measuring stresses of acceleration and weightlessness on man, stating concretely problems that need to be solved but which have received little attention, and collecting a specialized scientific library in the field of bio-astronautics.

Science News Letter, February 28, 1959

# IN SCIENCE

## MEDICINE

## Tranquilizers Pacify Patient and Doctor

► USING tranquilizers can lull doctors, patients and parents into a false sense of security.

The effects of tranquilizers can mask underlying difficulties and create an atmosphere of complacency, Dr. Reginald S. Lourie, director of psychiatric service at Children's Hospital, Washington, said.

If such symptoms as vomiting are controlled by these drugs, the tendency is to assume that the patient is improving, Dr. Lourie told scientists attending a meeting sponsored by the U. S. Public Health Service's National Institute of Mental Health.

The group is formulating research approaches in studying the effects of tranquilizers and other drugs in psychiatric therapy.

Pinpointing some of the problems of using tranquilizers on children, Dr. Lourie said the effects of such drugs on nervous systems not fully developed are still unknown.

"What happens to those functions of life that have elements of frustration in them which lead to formation of defenses on an adequate basis? How can an organism learn how to deal with anxiety if it is spared the anxiety on top of which it can learn?" he asked.

A study based upon the use of tranquilizers on children in one hospital showed they were employed mainly to reduce or control physical symptoms, such as vomiting, and with restless, colicky babies. They have also been employed in sleep problems, bed-wetting and brain damaged children.

Tranquilizers have also been given to children before dental procedures and surgery such as tonsillectomies.

Science News Letter, February 28, 1959

## VETERINARY MEDICINE

## Cats Get Head Colds, Too But Not Human Variety

► IF A CAT sneezes, it may have pneumonitis, the feline equivalent of the common head cold in humans, reports Dr. Robert Kirk, veterinary professor at Cornell University, Ithaca, N. Y.

"A cat with pneumonitis will act very much like a human with a head cold," Dr. Kirk told a group of Wisconsin veterinarians in Milwaukee.

"It will sneeze, lose its appetite and drool excessively. And like the head cold, pneumonitis is not in itself dangerous, but if untreated may result in serious secondary infections."

Dr. Kirk said pneumonitis is a virus disease, contagious among cats, but non-transmittable to humans.

Science News Letter, February 28, 1959

## THE FIELDS

### ENGINEERING

#### Hydraulic Jet Mining Applicable to Coal Mining

► **HYDRAULIC JET** mining has a definite application in the coal industry, and coal pipelines may become more popular as rail rates increase.

This was reported to a meeting of the Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers in San Francisco, by John H. Baker of American Gilsonite Co., Salt Lake City.

Hydraulic mining is not a cure-all, he said, and there are probably many instances where it would not work at all.

Jet cutting methods in the United States, said Mr. Baker, are based on using small quantities of high pressure water to fracture and dislodge the ore, and then low pressure water to fume or convey the ore. The jet nozzle is kept as close to the face as possible because there is a definite loss in efficiency as the distance between the working face and the nozzle increases.

Fracturing, bedding planes and cleavage faces are much more important than hardness of the material in the proper breaking of the ore, he said.

Science News Letter, February 28, 1959

### PUBLIC HEALTH

#### Influenza Hunt Is on At U. S. Ports of Entry

► **THE OUTBREAK** of influenza in Europe could be spread to this country by persons traveling from that continent to the U. S.

Influenza cannot be turned back at ports of entry as an unwanted alien, but the U. S. Public Health Service is doing the next best thing. Quarantine officers are examining all persons arriving by ship and air, both American and foreign citizens, for symptoms of influenza.

Those cases discovered will either be hospitalized or directed to their own physicians.

Dr. William J. Zukel of the U. S. Surgeon General's office said such port-of-entry detection will be helpful but is not capable of completely stemming the expected sporadic outbreaks here.

Detection of incipient flu, Dr. Zukel explained, is complicated by the two- to seven-day incubation periods of the viruses. Air passengers travel at such speed that they can carry latent viruses across the ocean and not show influenza symptoms until "safe" at home. Three- and four-day ship crossings also cut down the number of detectable cases.

The best preventive measure is vaccination. Two shots between four and six weeks apart should protect between 65% and 75% of the people taking them. The

immunizations are probably good for somewhat less than a year.

The Public Health Service urges pregnant women, the aged and persons with heart diseases and diabetes to be vaccinated at once. Such groups are especially susceptible to influenza and its potentially severe complications.

Since last year's Asian flu epidemic, PHS scientists have been investigating the long-term effects on the children of mothers who were stricken during pregnancy. Dr. Zukel said the studies must run for years before any significant results can be determined.

Science News Letter, February 28, 1959

### PUBLIC HEALTH

#### More Evidence Mosquito Carries Sleeping Sickness

► **MORE EVIDENCE** that some mosquitoes may be responsible for keeping various forms of encephalitis, dread sleeping sickness, "going" in the eastern United States is found by four U. S. Public Health Service researchers from the Communicable Disease Center, Montgomery, Ala. The disease afflicts animals and sometimes humans.

Both eastern and western encephalitis viruses were obtained from mosquitoes captured in North Carolina and New Jersey, Drs. R. W. Chamberlain, W. D. Sudia, P. P. Burbulis and M. D. Bogue report in *Mosquito News*.

Recovery of the eastern form from the mosquito *Culiseta melanura* "further substantiates its role as an important vector" or carrier of the disease, they pointed out. Blood-engorged and non-engorged insects were studied.

*Culiseta melanura* may also be important in maintaining western encephalitis as an endemic disease, one that is native to a locality, in the East.

Science News Letter, February 28, 1959

### AERO-MEDICINE

#### Artificial Skin Aids Study of Solar Radiation

► **AN ARTIFICIAL** human skin may help overcome radiation hazards confronting high-altitude pilots.

In a device to measure the effects of radiation a pilot might face from direct sunlight at high altitudes, a material simulating human skin is laid over a metal cylinder. Temperature is controlled above and below the skin surface and instruments measure the temperature through it.

This technique was reported by Alice M. Stoll, physiologist, and Leon C. Greene, pharmacologist, both of the U. S. Naval Air Development Center of the Aviation Medical Acceleration Laboratory in Johnsville, Pa.

Successful operation of the device would provide information to enable designers to produce proper clothing and atmosphere for persons exposed to extreme sun heat.

Science News Letter, February 28, 1959

### SEISMOLOGY

#### Statistics Released On Alaska Earthquake

► **THE EARTHQUAKE** that shook a 115-mile strip in southeastern Alaska last July 10 was caused by a 21½-foot horizontal slip and a 3½-foot upward slip along the Fairweather fault, two experts have reported. The quake was accompanied by an "enormous wave" in Lituya Bay that destroyed a hillside forest to a height of more than 1,700 feet.

Believed triggered by a rock slide, the wave destroyed a forest area of nearly four square miles and stripped to bedrock a triangular area about one mile wide at the base.

Dr. D. J. Miller, U. S. Geological Survey, Menlo Park, Calif., and Don Tocher, University of California's seismic station at Berkeley, report in *Science* (Feb. 13), that the zone of "shattered soil and rock" along the fault measured generally wider than 6½ feet.

Science News Letter, February 28, 1959

### PUBLIC HEALTH

#### U. S. Experiencing Start Of Hepatitis Wave

► **A SUBSTANTIAL INCREASE** in the number of cases of infectious and serum hepatitis indicates that the U. S. is in for another bout with this liver-damaging disease.

This present upswing in this country is probably the beginning of another cycle that will last through the next two years, Dr. C. C. Dauer, medical adviser for the National Office of Vital Statistics, said.

A total of 608 cases, the largest number for one week since early 1956, has been reported by the U. S. Public Health Service. This is more than 75% above the number of cases reported for the comparable week one year ago.

Until the last six months, the number of cases reported weekly was slipping down. Since then the number has slowly risen. The disease usually reaches its peak in March, after which it is expected to dip for the summer months, he explained.

But next winter will no doubt see another increase, perhaps more so than this season. The last wave of hepatitis reached a peak in 1954. Since records of the incidence of the disease have been recorded only since 1950, the exact cycle of hepatitis has not been determined, Dr. Dauer said.

The recent cases of hepatitis reported from U. S. Navy ships in the Mediterranean have not been included in these latest statistics.

There is no vaccine for this virus that travels in the blood stream of humans. Doctors can use an immune serum globulin that protects persons for between six and eight weeks. But widespread administration of such a serum would be impractical. The serum is expensive, difficult to obtain, and, generally, not available in large quantities.

Science News Letter, February 28, 1959

## DEMOGRAPHY

# Overpopulation Threatens World

The specter of overpopulation, brought on by medical achievements, is threatening the world. World population may double to 6,000,000,000 in 40 years.

By RALPH SEGMAN

► ONE OF MODERN MAN'S proudest achievements, the increase of the human life span, is threatening to explode in his face.

The danger lies in the so-called "Population Bomb." If the present explosive rate of population growth continues, the world will be overrun by multitudes of people kept healthy and alive by medical science. But it would be impossible for the most fertile earth to support such a human mass. Eventually, billions would die of starvation, succumb to disease because of lowered resistance, and kill one another off in wars.

Part of the blame for this enormous threat can be put on man's medical progress which, in the past century, has been no less than phenomenal. He has discovered cures and immunizations for most death-dealing diseases. He has developed ingenious surgical methods for bringing new life to the hopeless and the debilitated. He has brought the science of nutrition, with its mineral and vitamin supplements, to a level where good health is more of a normal occurrence than a goal to strive for.

## Growth Statistics

All this has led to longer, healthier life and a far better material world than ever before. And for the next few decades life promises to improve even more.

Here is the hitch:

According to the United Nations Demographic (statistical study of populations) Yearbook for 1957, the world's annual average birth rate during the five previous years was 34 per 1,000 population. The death rate was 18. These are the seemingly innocuous figures that spell out the monstrous dilemma in which the human race finds itself.

Until 1650, world population grew slowly and erratically, held in check by epidemics, famines, droughts, wars and other disasters, until it reached about 500,000,000. In the ensuing three centuries it has more than quintupled to more than 2,800,000,000, and shows no definite signs of slowing down. The U.N. report indicates that by the year 2000, only 41 years from now, the face of the earth will be crowded with 6,250,000,000 human beings.

As population grows, material demands expand and competition among nations increases for the remaining natural resources. The complexities of life increase. Cities become larger, and farmland, forests and even deserts retreat before the onslaught of asphalt, concrete and steel.

Indeed, we may be on a suicidal course like lemmings which, some scientists theorize, reproduce so avidly that periodically they exhaust their food supply and leap to their deaths at sea in quest of new "pastures."

How is the coming human mass to be fed, let alone clothed? The Population Reference Bureau, a private research organization in Washington, D.C., estimates that in the next ten years about 500,000,000 additional acres of farmland will be needed, an area as large as Alaska, Colorado and Arizona.

The problem is approached from two directions. One is to provide the material demands through scientific advance. For example, in the U.S. one-third fewer farm people produced 55% more farm products in 1958 than in 1938. A hybrid corn, developed by former vice president Henry A. Wallace in the late 1930's, added 20% or 500,000,000 bushels to America's corn harvest without additional land or labor.

Future achievements of science and technology will constitute a partial solution but there is a limit to the amount of bread that can be squeezed out of the earth.

The second approach concerns the touchy subject of birth control, or man-made restrictions on the size of the increasing world population.

Responsibility for the specter of overpopulation is primarily that of man's growing control over nature and the declining death rate, coupled with his lack of control over his own nature and the steady birth rate.

Dr. Harrison S. Brown, professor of geochemistry at the California Institute of Technology and author of books on the population problem, believes solutions can be found that "do not violate human dignity and which can fit into the framework of individual culture patterns, moral codes and beliefs."

Urging us to cast aside our squeamishness, Dr. Brown suggests that two requisites for solving the problem are: first, to discuss it widely and understand it; and, second, to intensify biological and social research.

Some nations have achieved a degree of birth control, most notably Japan.

One of the most crowded countries in Asia, Japan has recorded what is believed to be the most spectacular birth rate decline in modern history: from 34.3 in 1947 to 18.5 in 1956. With 90,000,000 people jammed into an area smaller than that of California, the Japanese are intensely aware of the danger of overpopulation.



**OVERPOPULATION**—This alley scene in Miami, Fla., is one of today's scattered examples of the overpopulation disease threatening to spread throughout the world. As population grows, it is increasingly difficult to supply the people with adequate food, clothing and shelter.

Since World War II, contraceptives have come into more widespread use. In 1948, abortion and sterilization were legalized. These factors and a natural decrease in birth rate seem to be responsible for the amazing decline.

The position of the Catholic Church in the matter is summarized in a book "Overpopulation" published by The Catholic University of America Press. The summary includes the following points:

1. If human expansion continues indefinitely, the race eventually will become too large for its earthly habitat. With our present knowledge, we cannot understand how God intends to maintain a state of equilibrium.

2. It cannot be predicted accurately how population will develop in the future, how great the production potential is or what future possibilities remain to be uncovered.

3. When the increasing life expectancy, a transitory condition, levels off the death rate may be expected to rise and more nearly approximate the birth rate. Then population will take a downward swing.

4. It is irrational to take population restriction measures in order to avoid a catastrophe in the unforeseeable future which is only a matter of conjecture. Such measures have little scientific backing and betray a lack of faith in the Divine Providence.

Since there appears to be agreement that the earth is limited in the number of people it can support, there is at least some recognition of the problem. Such recognition must grow in all human beings from the present generations on. Only then may it be possible to forestall the impending disaster of a teeming over-populated earth.

Science News Letter, February 28, 1959

## Questions

**CARDIOLOGY**—What is the red blood cell count of the giraffe? p. 133.

**CLIMATOLOGY**—What temperature trend has been confirmed from data obtained in Antarctica during the International Geophysical Year? p. 131.

**VETERINARY MEDICINE**—What is the feline equivalent of the common head cold in humans? p. 136.

Photographs: Cover, Perkin-Elmer Corp.; p. 131, McDonnell Aircraft Corp.; p. 133, New York Heart Association; p. 135, Minneapolis General Hospital Research Foundation, Inc.; p. 138, U. S. Public Housing Administration; p. 144, Eastman Chemical Products, Inc.

## Do You Know

Nearly 400,000 children under 12 in the U. S. have to care for themselves while their mothers work.

More than three out of every eight persons 65 or over in the U. S. now have some form of voluntary health insurance.

Using hydrogen peroxide to prepare milk for cheese making does not appear to harm the food value or general make-up of cheese.

## HEAT-VIBRO PILLOW

ELECTRIC HEAT—PLUS-VITA MASSAGE

New—Improved—New



Now while you gently massage and soothe those aches and pains you can apply gentle heat, therapeutic heat and warmth. This compact 10" square cushion does the same work as machines which cost 10 times as much.

It massages and heats electrically, gently on any part of your body. Use it on your feet, back of neck, legs or thighs, stomach or back. It will soothe while relaxing and conditioning your body. A few minutes a day at any convenient time will make a world of difference.

**\$8.95**

Shipping Charge 50¢

JOHN SURREY, LTD., 11 W. 32nd St., N. Y. 1, N. Y., Dept. SN 96

## Compare our prices on

**NATURAL-ORGANIC**

## VITAMINS

High Potency Diet Supplements

All prices POSTPAID! Satisfaction guaranteed or money back.



<b>75 mg. Rose Hips 100% Natural VITAMIN C TABLETS</b>		
<input type="checkbox"/> 100 for .85	<input type="checkbox"/> 500 for 4.10	<input type="checkbox"/> 1,000 for 7.95
<b>Natural SOY BEAN LECITHIN Granules Organic</b>		
<input type="checkbox"/> 8 oz. for 1.45	<input type="checkbox"/> 1 lb. for 2.45	<input type="checkbox"/> 4 lbs. for 9.15
<b>Natural VITAMIN E—100 INT. UNIT CAPSULES</b>		
<input type="checkbox"/> 100 for 2.85	<input type="checkbox"/> 500 for 13.65	<input type="checkbox"/> 1,000 for 23.75
<b>Natural VITAMIN E—30 INT. UNIT CAPSULES</b>		
<input type="checkbox"/> 100 for 1.35	<input type="checkbox"/> 500 for 5.70	<input type="checkbox"/> 1,000 for 9.85
<b>Natural VITAMIN A CAPSULES 25,000 USP Units each</b>		
<input type="checkbox"/> 100 for .69	<input type="checkbox"/> 500 for 3.35	<input type="checkbox"/> 1,000 for 5.95
<b>IODINE RATION—Natural KELP TABLETS</b>		
<input type="checkbox"/> 100 for .35	<input type="checkbox"/> 500 for .85	<input type="checkbox"/> 1,000 for 1.45
<b>Cold Pressed WHEAT GERM OIL CAPSULES 3 minim.</b>		
<input type="checkbox"/> 100 for .35	<input type="checkbox"/> 500 for 1.15	<input type="checkbox"/> 1,000 for 1.95
<b>7½ grain Desiccated LIVER TABLETS low heat dried</b>		
<input type="checkbox"/> 100 for .45	<input type="checkbox"/> 500 for 1.75	<input type="checkbox"/> 1,000 for 2.95
<b>Red "Wonder" VITAMIN B-12 5 MCG TABLETS</b>		
<input type="checkbox"/> 100 for .45	<input type="checkbox"/> 500 for 1.65	<input type="checkbox"/> 1,000 for 2.75
<b>Natural VITAMIN A and D Capsules 5,000 units A; 500 D</b>		
<input type="checkbox"/> 100 for .50	<input type="checkbox"/> 500 for 1.80	<input type="checkbox"/> 1,000 for 3.25
<b>Nat'l BONE MEAL TABLETS—Regular 7½ grain</b>		
<input type="checkbox"/> 100 for .35	<input type="checkbox"/> 500 for 1.15	<input type="checkbox"/> 1,000 for 1.95
<b>Hulled, Whole SUNFLOWER SEEDS Organically Grown</b>		
<input type="checkbox"/> 1 lb. for .95	<input type="checkbox"/> 5 lbs. for 4.55	<input type="checkbox"/> 10 lbs. for 8.50
<b>Plain Soy LECITHIN Capsules. Compare this low price</b>		
<input type="checkbox"/> 100 for .35	<input type="checkbox"/> 500 for 1.50	<input type="checkbox"/> 1,000 for 2.50
<b>LECITHIN Capsules with natural vitamins A and D</b>		
<input type="checkbox"/> 100 for .45	<input type="checkbox"/> 500 for 1.75	<input type="checkbox"/> 1,000 for 3.15
<b>Highest Potency Food YEAST TABLETS. One tablet a day</b>		
<input type="checkbox"/> 100 for .55	<input type="checkbox"/> 500 for 2.25	<input type="checkbox"/> 1,000 for 3.75
<b>BREWERS YEAST Powder. Rich in natural B complex</b>		
<input type="checkbox"/> 1 lb. for .75	<input type="checkbox"/> 5 lbs. for 3.25	<input type="checkbox"/> 10 lbs. for 5.95
<b>BREWERS YEAST Tablets—7½ Grain Tablets</b>		
<input type="checkbox"/> 250 for .45	<input type="checkbox"/> 500 for .75	<input type="checkbox"/> 1,000 for 1.25
<b>Finest Quality EDIBLE GELATIN. Save 50%</b>		
<input type="checkbox"/> 1 lb. for 1.49	<input type="checkbox"/> 5 lbs. for 7.20	<input type="checkbox"/> 10 lbs. for 13.75
<b>GARLIC and Parsley TABLETS. Order now and SAVE</b>		
<input type="checkbox"/> 100 for .45	<input type="checkbox"/> 500 for 1.75	<input type="checkbox"/> 1,000 for 2.95

☐ Check here for FREE PRICE LIST of Natural Vitamins

### NATURE FOOD CENTRES

292 Main St.—Dept. N-92

Cambridge 42, Mass.

### MAIL THIS AD

Just check items desired and mail entire ad with remittance.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_ State \_\_\_\_\_

# Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

**ANALYTICAL CHEMISTRY: Some New Techniques**—A. G. Jones—*Academic*, 268 p., illus., \$7.50. Includes flame photometry, differential spectrophotometry, gas chromatography and differential refractometry.

**ASTRONOMY: A Textbook for University and College Students**—Robert H. Baker—*Van Nostrand*, 7th ed., 547 p., illus., \$6.95. Introductory college course covering latest developments.

**ATOMS TODAY & TOMORROW**—Margaret O. Hyde—*Whitely House*, rev. ed., 160 p., illus., by Clifford N. Geary, \$3. Popular book brought up-to-date, emphasizing peacetime uses of atomic energy.

**BIRDS WE KNOW**—Margaret Friskey—*Grosset*, 47 p., illus., by Anna Pistorius, \$1. Easy to read and informative for the youngest readers.

**A COLOR ATLAS OF MORPHOLOGICAL HEMATOLOGY: With a Guide to Clinical Interpretation**—Geneva A. Daland, Thomas Hale Ham, Ed.—*Harvard Univ. Press*, rev. ed., 72 p., illus., by Etta Piotti, \$6.75. Reference guide to the study of blood films.

**CREATIVITY: An Examination of the Creative Process**—Paul Smith, Ed.—*Hastings House*, 210 p., illus., \$4.95. Chapters on creativity in science, research and engineering.

**DICTIONARY OF ASTRONOMY AND ASTRONAUTICS**—Armand Spitz and Frank Gaynor—*Philosophical Lib.*, 439 p., illus., \$6. Definitions of more than 2,200 terms and concepts.

**DON'T WORRY ABOUT YOUR HEART**—Edward Weiss, M.D.—*Random House*, 203 p., \$3.95. Discusses the psychosomatic aspects of heart disease.

## MATHEMATICS FOR EVERYMAN

From Simple Numbers to the Calculus  
by EGMONT COLERUS

Egmont Colerus is one of that all-too-small hand of gifted teachers who know how to COMMUNICATE mathematics.

Once caught in his "trap" there is no escape—one is compelled to go on at least as far as the calculus, with fascinating glimpses of mathematical history and philosophy along the way.

Little or no previous knowledge of mathematics is assumed. Every point is illustrated with an example. Such is Colerus' talent that long before the reader knows what is happening, he finds, amazingly, that he has acquired a ready grasp of the fundamentals of mathematical operations and mathematical reasoning. More, some of the magic, the greatness, the beauty of the science has somehow rubbed off onto him, to his permanent enrichment.

**PARTIAL CONTENTS:** Numbers • The System of Tens • Other Number Systems • Symbols and Commands • Arrangement • Permutation • Combination • Other Kinds of Arrangement • First Steps in Algebra • Fractions • Equations • Negative and Fractional Powers • Irrational Numbers • Generalized Decimal Fractions • Algebraic Functions • The Theorem of Pythagoras • Functions of Angles • Imaginary and Complex Numbers • Co-ordinate • Analytical Geometry • Squaring the Circle • Calculating the Lengths of Curves • Differentials and Integrals • Three Kinds of Smallness • The Binomial Theorem • Archimedes' Quadrature of the Parabola • Series • The Technique of Differentiation • Mean Value and Definite Integrals • Problems of Area • Logarithms • Interpolation, Extrapolation • Conclusion. Illustrations throughout.

ORDER NOW!

MATHEMATICS FOR EVERYMAN  
by Egmont Colerus

\$3.95 Postfree • 10 Day Money Back Guarantee  
EMERSON BOOKS, Inc., Dept. 611-L  
251 West 19th Street, New York 11

**THE EDGE OF THE SEA**—Rachel Carson—*New Am. Lib.*, 238 p., illus., by Bob Hines, paper, 50¢. Reprint of 1955 edition.

**ELECTRONIC COMMUNICATION**—Robert L. Shrader—*McGraw*, 937 p., illus., \$13. For the beginner in electronics who wants to become a licensed radio operator.

**THE ESKIMO: Arctic Hunters and Trappers**—Sonia Blecker—*Morrow*, 160 p., illus., by Patricia Boodell, \$2.50. Acquaints young readers with the skills and customs of Eskimos.

**THE FILM VAPORIZATION COMBUSTION FOR GAS TURBINE ENGINES: Theoretical and Experimental Investigations**—Gunter W. Maybach—*Pa. State Univ., College of Engineering*, 142 p., illus., paper, \$2.

**THE FORD FOUNDATION ANNUAL REPORT 1958**—*Ford Foundation*, 183 p., illus., paper, free upon request direct to publisher, 477 Madison Ave., New York 22, N. Y. Includes review of Foundation projects.

**GREENWOOD SUMMER**—Marjory Bartlett Sanger—*Dutton*, 160 p., illus., by Christine Price, \$2.95. What youngsters can learn in a nature camp, with notes and bibliographies.

**HIGHLIGHTS: National Conference on Air Pollution 1958—Public Health Service (Govt. Printing Office)**, 42 p., illus., paper, 35¢. Reports on plenary sessions, group discussions and recommendations.

**INSECTS OF HAWAII, Vol. 8: Lepidoptera: Pyraloidea**—Elwood C. Zimmerman—*Univ. of Hawaii Press*, 456 p., illus., paper, \$8. A manual of the insects of the Hawaiian Islands, enumerating species with notes on their origins, distribution, hosts and parasites.

**LOW-FAT COOKERY**—Evelyn S. Stead and Gloria K. Warren, introd. by Eugene A. Stead, Jr. and James V. Warren—*McGraw*, rev. ed., 284 p., illus., \$4.50. Tested recipes for the low-fat dieter.

Solve your Science Project Problem  
by making an ACHROMATIC GALILEAN  
TELESCOPE \$2.00 POST PAID

All tools and instructions supplied for this fine project. The 4 lenses will make a 5 or 8 or 15 power telescope giving crisp color-free images. Needed tubing found in every home. Simple, easily built with household tools. Firmly fixes in mind the optical principles of this important scientific instrument. Lenses made in U.S.A. Manufacturing cost 5 times what we ask. Instruction sheet only costs 10¢ PP.

HARRY ROSS Scientific & Lab Apparatus  
63 Reade St., N. Y. 7, N. Y.

Pocket Transistor Radio  
"Hit Parade"  
Mighty Midget



Marvelous Reception!

Size of cigarette package, yet thrilling performance. Weighs only 3 ounces. Listen while traveling, at ball game in home or office or school. Includes Hi-Fi speaker-phonograph for private listening. Modern two-toned plastic case, red with gold metal grille. Complete broadcast band, on/off switch and ear buds. Standard penlight cells (included). Guaranteed. Complete, ready for immediate playing. Postpaid \$7.95 Only.

JOHNSON SMITH & CO., Dept. 768, Detroit 7, Mich.

**THE MAGNETO-IONIC THEORY AND ITS APPLICATIONS TO THE IONOSPHERE**—J. A. Ratcliffe—*Cambridge Univ. Press*, 206 p., \$7.50. Monograph gives detailed account of a theory that plays an important part in theories of radio wave propagation through the earth's ionosphere.

**MILLIONS OF YEARS AGO: Prehistoric Life in North America**—Edwin H. Colbert—*Crowell*, 153 p., illus., by Margaret M. Colbert, \$2.75. A paleontologist's story of fossil hunters and their finds, written for the general reader.

**MODERN FOUNDRY PRACTICE**—E. D. Howard, Ed.—*Philosophical Lib.*, 3rd ed., 464 p., illus., \$15. Well-known guide to foundry work in Great Britain.

**MR. MEADOWLARK**—Miriam Mason—*Hastings House*, 110 p., illus., by Marie C. Nichols, \$2.75. Nature story for boys and girls.

**NOMOGRAMS FOR CHEMICAL ENGINEERS**—Om P. Kharbanda, foreword by Sir Harold Hartley—*Academic*, 247 p., \$15. One hundred nomograms covering the main physical constants likely to be needed in chemical engineering calculations.

**PILOT PROJECT, INDIA: The Story of Rural Development at Etawah, Uttar Pradesh**—Albert Mayer, McKim Marriott and Richard L. Park, introd. by Pandit Govind Ballabh Pant—*Univ. of Calif. Press*, 367 p., illus., \$5.50. Comprehensive study of an experiment in planned rural development, including case histories.

**PROBLEMS IN ENGINEERING STRUCTURES**—R. J. Ashby and A. H. Chilver—*Arnold, E. & Co. (St. Martins)*, 168 p., \$4.50. Covers elementary aspects of structural analysis for the undergraduate.

**PROFESSIONAL INCOME OF ENGINEERS 1958**—Engineering Manpower Commission, Donald S. Bridgman, Chmn.—*Engineering Joint Council*, 63 p., charts, paper, \$3. Information on total number of engineering graduates, including those earning over \$20,000 and less than \$5,000.

**PROJECT VANGUARD REPORT No. 33: Mini-track Report No. 7: Calibrating the Mark II Mini-track System with Radio Stars as Signal Sources**—V. R. S. mas and G. C. Krommiller, Jr.—*U. S. Naval Res. Lab. (Office of Technical Services)*, 26 p., illus., paper, 75¢.

**PROJECT VANGUARD REPORT No. 34: Application of the Simplified Phase Plane to the Analysis and Design of Missile Jet-Relay Control Systems**—J. L. Hicatt—*U. S. Naval Res. Lab. (Office of Technical Services)*, 32 p., paper, \$1.

**PROJECT VANGUARD REPORT No. 35: Mini-track Report No. 6: The Vanguard Satellite Command Receiver**—D. S. Hepler—*U. S. Naval Res. Lab. (Office of Technical Services)*, 10 p., illus., paper, 50¢.

(Continued on page 142)

SEND FOR  
**Free Record**  
START SPEAKING  
**FRENCH**  
OR  
**SPANISH**  
ALMOST OVERNIGHT!

HERE'S the easiest way to learn FRENCH, SPANISH, Russian, German, Italian, Japanese or Brazilian. Listen to FREE 2-sided non-breakable record. Let your eyes follow words in FREE sample lesson. Almost at once you'll be chatting in a new language with a perfect accent! That's all you hear! No dull, tedious work. Just listen—imitate! It's that easy! Offer may end soon. Rush 25¢ to help cover cost of special packaging, shipping. State language you want. We'll also send free information on full Cortina course. No obligation. **CORTINA ACADEMY**, Dept. 602A, 136 W. 52nd St., New York 19.

Why  
the

# 4-inch DYNASCOPE Reflector

Reg. U.S. Pat. Off.

is now used and approved by over 40  
colleges and professional institutions



A Complete, Superior Telescope  
with Advanced Features

## Compare These Advances:

- 1) 4-INCH PARABOLIC PYREX MIRROR — aluminized and overlaid with zircon quartz for maximum life!
- 2) 3 ACHROMATIC EYEPIECES — 18-mm. Huygens, 9-mm. Ramsden, 7-mm. Ramsden—providing 65X, 130X and 167X!
- 3) RACK & PINION focusing!
- 4) 4-POWER Achromatic FINDER SCOPE With Cross Hairs
- 5) NEW IMPROVED MOUNT—fine equatorial with free moving polar axis, Adjustable for Altazimuth, too.
- 6) SIMPLE LATITUDE ADJUSTMENT—making your instrument usable anywhere in the world.
- 7) ALL-BAKELITE TUBE, brass-trimmed!
- 8) CLAMPS ON BOTH AXES—adjust instantly and permit smooth setting of either axis.
- 9) 33" hardwood folding TRIPOD!

## A SCIENTIFIC INSTRUMENT OF HIGH CALIBER AT LOW COST!

There's an excellent reason why the 4-inch DYNASCOPE Reflector is now the instrument used, approved and recommended by more and more schools, colleges, planetariums and professional astronomers. It is the remarkable scientific accuracy and engineering balance built into this complete telescope — at an incredibly low price! If you were to purchase the parts and assemble them yourself, you would spend much more than the unheard of low price of this precision instrument. And in building your own telescope you could never hope to attain the accuracy and co-ordination of parts that have been engineered into the Dynascope.

The 4-inch parabolic mirror produces exquisite definition of all the bright planets and is fully capable of splitting close double stars. (Note: the 4-inch mirror gathers  $\frac{1}{2}$  more light than a 3½-inch mirror!) Finished to exacting specifications and guaranteed to perform to the Dawes' limit of resolution for its size! A 4-inch parabolic mirror of such quality has only been obtainable in the highest-priced instruments up to now!

Manufactured and Sold Only By  
**The Criterion Manufacturing Co.**

Manufacturers of Quality Optical Instruments  
Dept. SND-43, 331 Church St., Hartford 1, Connecticut.  
Telephone: CHapel 7-1696 • Cable Address: CRICO

FOR ONLY

**\$49<sup>95</sup>**

F.O.B. Hartford, Conn.  
Shipping Weight 16 lbs.  
Express Charges Collect



**\$79<sup>95</sup>**

F.O.B.  
HARTFORD,  
CONN.

## PROOF OF SUPERIORITY

[On Request — we will send a list of noted institutions now using the 4" DYNASCOPE]

## TESTIMONIALS:

### From An Observer

On clear "good-seeing" nights my Dynascope easily reveals the Alpine Valley and the Straight Wall on the Moon, as well as three peaks in the floor of the Plato ring plain. It will split the star Mizar into its major components clearly. It will separate Saturn's rings and show six bands on the face of Jupiter. Also it will project a two-foot diameter disk of the sun showing sunspots in vivid detail . . . as an Englishman might express it, "Dynascope optics are a little bit of all right."  
—VICTOR W. KILICK, in charge of Astronomical Observatory, Sacramento Junior College, Calif.

### Many Years of Experience

. . . I have had many years of experience in astronomy, and as junior leader here in Atlanta I always recommend Dynascope.  
—LEONARD B. ABBEY, Jr., Decatur, Ga.

### Cannot Be Equaled

I still don't see how you can produce a parabolic mirror of this focal ratio at the price . . . Epsilon Lyra was quite easy . . . on the 130 power ocular. I was more than pleased when it resolved this double double as four tiny, sharp, brilliant gems . . . with the diffraction rings concentric and sharp.

. . . For the price you ask, I do not believe that it can be equaled in any way. The oculars are excellent, and the entire instrument shows careful workmanship. How you do it is beyond me. —G. N. JOHNSTONE, Albuquerque, N.M.

## Criterion Manufacturing Company

Dept. SND-43, 331 Church St., Hartford 1, Conn.

- ☐ Enclosed find payment of \$49.95. Please ship me promptly, subject to your money back guarantee, 4-inch DYNASCOPE Telescope with 9 advanced features.
- ☐ Enclosed find payment of \$79.95. Send me at once subject to money back guarantee 4" model K-A Electric Dynascope with all its new features.
- ☐ Send me FREE Illustrated Literature on the NEW 6", 8", 10", 12", 16" DYNASCOPES.

Name .....

Address .....

City .....

State .....

**GENUINE DIAMONDS**  
at Rock Bottom Prices

Buy diamonds and diamond jewelry direct from Kaskel's, America's oldest diamond discount house. Every diamond is set in a luxurious new mounting... graded according to nationally accepted standard... and bonded to this effect. For over 75 years, we've served over 1,000,000 satisfied customers. CASH OR CREDIT.

**SEND FOR BIG FREE ILLUSTRATED CATALOG**

Reference: Your bank, or any Rating Agency  
41 West 57 St. 900-B  
N. Y. 19, Dept.

Send FREE CATALOG and Advice about DIAMONDS without obligation.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

**LEARN-BY-DOING KITS**

Geology Kit	Prepaid \$21.00
Optic Kit	16.50
Construct a Globe Kit	5.75
Weather Station Kit	8.95
Backyard Zoo	7.75
Basic Electrical Kit	8.95
Electric Quizbook	12.95
Fractions Kit	9.75
Oil Refinery Kit	17.50
Distillation Products Kit	17.50
Butterfly Collecting Kit	5.50

**ECKERT Mineral Research Inc.**  
PROSPECTORS SUPPLIES  
Dept. SNL, 110 E. Main, Florence, Colorado

## Books of the Week

(Continued from page 140)

PROMISING PRACTICES IN NUTRITION EDUCATION IN THE ELEMENTARY SCHOOL—Willard I. Jacobson, Fannie Lee Boyd and Mary M. Hill—*Teachers College*, 46 p., paper, \$1. Suggests ways of improving the nutrition of children through education.

THE PSYCHOLOGY OF SOCIAL CLASS—Maurice Halbwachs, transl. from French by Claire Delavenay, introd. by Georges Friedmann—*Free Press*, 142 p., \$4. Concerning the influence of the class group in the peasant, bourgeois, worker and lower middle classes.

PSYCHOPHARMACOLOGY FRONTIERS—Nathan S. Kline, Ed.—*Little*, 533 p., illus., \$10. Proceedings of the Psychopharmacology Symposium of the Second International Congress of Psychiatry, held in Zurich in 1957.

THE PULSE OF RADAR: Autobiography—Sir Robert Watson-Watt—*Dial Press*, 438 p., \$6. Story of the scientist who invented radar.

RECOMMENDATIONS ON UNDERGRADUATE CURRICULA IN THE BIOLOGICAL SCIENCES—Willis H. Johnson and others, Eds.—*Nat. Acad. of Sciences—Nat. Res. Council, Division of Biology*, 86 p., paper, \$1.75. Summarizes the results of a conference called to re-examine undergraduate teaching program.

RUSSIAN PRONUNCIATION: A Practical Course—Dennis Ward—*Hafner Pub. Co.*, 90 p., \$2.50. Gives guidance to students in developing a good pronunciation, using ordinary letters of Russian alphabet rather than phonetics.

SKIN RESISTANCE CHANGES DURING ACCELERATION—Sanford I. Cohen and others—*Wright Air Dev. Center (Office of Tech. Services)*, 10 p., paper, 50¢.

TV'S NEW ENGAGEMENT: Showmanship and Scholarship—Leon C. Fletcher—*Fearon Publishers*, 50 p., illus., paper, \$2. A report on educational television, prepared in cooperation with the Educational Television Research Association.

TELEVISION WORKS LIKE THIS—Jeanne and Robert Bendick—*Whitely*, 3rd rev. ed., 64 p., illus. by the authors, \$2.75. Pictorial story of the processes of television production, illustrated glossary of technical terms included.

TIMMY AND THE TIN-CAN TELEPHONE—Franklyn M. Branley and Eleanor K. Vaughan—*Crowell*, 24 p., illus. by Paul Gladone, \$2.50. For the very young reader.

WOODY PLANTS IN WINTER—Earl L. Core and Nellie P. Ammons—*Boxwood*, 218 p., illus., \$4, paper, \$2.75. A manual to identify trees and shrubs in winter in the Northeastern U. S. and Southeastern Canada.

Science News Letter, February 28, 1959

## PARENTS! HELP YOUR CHILD GET AHEAD

Give the tool that has aided millions thru the ages to master figures, the gift that teaches understanding and skill with numbers, helps learn arithmetic, easy to use. Latest model abacus, 13 columns, directions for beginners. \$2.49 ppd., COD's pay postage. Money back guarantee.

**ATTON PRODUCTS, Import Dept. 5**  
1424 K Street, N.W., Washington 5, D. C.

## Free to WRITERS seeking a book publisher

Two fact-filled, illustrated brochures tell how to publish your book, get 40% royalties, national advertising, publicity and promotion. Free editorial appraisal. Write Dept. SN  
**Exposition Press / 386 4th Ave., N.Y. 16**

**ATTACHE CASE**  
**RARE VALUE!**

- Waterproof
- Scuffproof
- 3-Side Zipper
- Full 10x15x3 inches
- Ginger Tan

Styled for convenient handling of papers, books, documents, small articles and clothing accessories. Extremely useful for students, salesmen, accountants, short trip-takers. Practical and neat. Only \$1.98 each plus 25¢ postage.

**\$1.98**  
plus 25¢ postage

Buy them by the dozen. \$25.00 including gold leaf imprints.

**NOVEL MFG. CO., Dept. AC-2953**  
33 Second Avenue New York 3, New York

**TREMENDOUS DO-IT-YOURSELF IDEA!**

**EYELET PLIER**

With 300 Rustproof Eyelets

Now, for the first time, a big, unwieldy shop machine has been reduced to a precision-made hand tool! New EYELET PLIER does a neat-looking, professional job every time... saves you big money on new articles and repairs. Works on fabric, leather, plastic, cardboard, paper, oilcloth.

Great for: Belts—Shoes & Sneakers—Binders—Deck Chairs—Sun Shades—Shower Curtains—Luggage Straps—Sports Equipment—Tents & Tarpaulins—Air Conditioner Covers—Sails—Duffel Bags—Camping Equipment—Wall Maps, Charts & Place Cards—Campaign & Promotion Material—Banners & Bunting, etc.

Eyelets prevent tearing of material, for re-use over and over again. Wonderful tool for smaller shop, hobby office, handicraft, professional therapy.

Complete with 300 Eyelets in assorted colors.

\$1.98 plus 25¢ postage & handling  
300 Extra Eyelets, 75¢

**SCOTT MITCHELL HOUSE, Inc.**  
Dept. HC4, 415 S. Broadway, Yonkers, N. Y.

**MICRO-ADS**

Equipment, supplies and services of special interest to scientists, science teachers and students, science-minded laymen and hobbyists. 25¢ per word, payable in advance. Closing date 3 weeks prior to publication (Saturday).

**SNL, 1719 N St., N.W., Washington 6, D. C.**

**ANCIENT INDIAN RELICS**

RARE PALEOLITHIC (STONE AGE) ARROWHEADS, 3 for \$1.00. Free Photo-Illustrated Catalog. AI's Indian Relics, Dept. SN, Box 393, Bellmore, New York.

**CHEMICAL AND APPARATUS**

CHEMICALS IN SMALL QUANTITIES (one to eight ounces). Everything for your laboratory. Catalog 25¢ 26th year. John H. Winn Co., Inc., 124 West 23rd Street, Dept. 200, New York 11, N. Y.

**MICROSLIDES**

MICROSLIDES: INSECTS, MARINE LIFE, Zoological, Botanical. British Fresh Water Algae Free. Send for Complete list Free. Esbe Laboratory Supplies, 450 Bloor St., W. Toronto, Ontario, Canada.

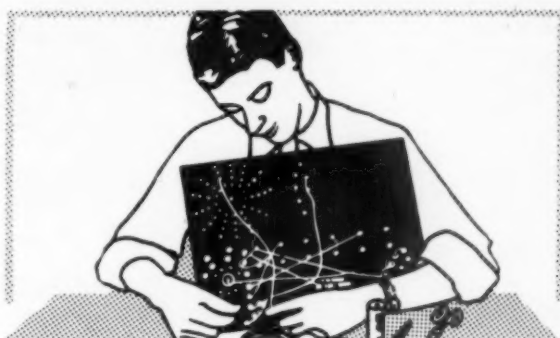
Make over 150 Small  
Computing and Reasoning  
Machines with . . .

# BRAINIAC®

## A BETTER ELECTRIC BRAIN CONSTRUCTION KIT

EQUALS THE ORIGINAL GENIAC® electric brain construction kit (1955) PLUS many improvements and additions: over 600 parts—including 116 improved patented wipers so that all switches work well. Instead of covering only 33 machines, BRAINIAC gives full specifications for 151 computing, reasoning, arithmetical, logical, puzzle-solving and game-playing machines . . . all 33 GENIACS (1955), 13 TYNIACS (1956), and 105 BRAINIACS (1957-58), etc.

**THIS IS BRAINIAC!** With our Brainiac Kit K17, you can build over 150 small electric brain machines and toys which "think," compute, reason, and display intelligent behavior. Each one works on a single flashlight battery . . . is FUN to make, FUN to use and play with, and TEACHES you something new about electrical computing and reasoning circuits. All connections with nuts and bolts—no soldering required. Originated and produced exclusively by Berkeley Enterprises, Brainiac is the result of 8 years' design and development work with miniature mechanical brains including: Geniac (see "Geniacs: Small Electric Brain Machines and How to Make Them" by Edmund C. Berkeley, 64 pp., published by Geniac Project, a partnership with Oliver Garfield discontinued September 1955), Tyniac (1956), Relay Moe (automatic relay machine playing tit-tat-toe—pictured in Life Magazine, March 19, 1956), Simon (miniature automatic digital computer with 129 relays—see "Simple Simon" by E. C. Berkeley in Scientific American, November 1, 1950), Squee (electronic robot squirrel—see "Light Sensitive Electronic Beast" by E. C. Berkeley in Radio Electronics, Dec. 1951), etc.



### WHAT CAN YOU MAKE WITH BRAINIAC KIT K17?

Over 150 machines including—**LOGIC MACHINES:** Syllogism Prover, Intelligence Test, Boolean Algebra Circuits, Douglas MacDonald's Will Analyzer, A Simple Kalin-Burkhart Logical Truth Calculator, etc. **GAME-PLAYING MACHINES:** Tit-Tat-Toe, Nim, Wheeled Bandit, Black Match, Sundorra 21, etc. **COMPUTERS:** To add, subtract, multiply or divide using decimal or binary numbers, Forty-Year Calendar, Prime Number Indicator, Money-Changing Machine, etc. **CRYPTOGRAPHIC MACHINES:** Coders, Decoders, Lock with 15,000,000 Combinations, etc. **PUZZLE-SOLVING MACHINES:** The Missionaries and the Cannibals, Age-Guessing Machine, Submarine Rescue Chamber, Daisy Petal Machine, Fox-Hen-Corn & Hired Man, Uranium Space Ship and the Space Pirates, The Three Monkeys Who Spurned Evil, General Alarm at the Fortress of Dreadeerie, etc. **QUIZ MACHINES:** History, geography, trigonometry, grammar, statistics, calculus, etc.

**WHO IS EDMUND C. BERKELEY?** Author of "Giant Brains or Machines That Think," Wiley, 1949, 270 pp. (15,000 copies sold); Author of "Computers: Their Operation and Applications," Reinhold, 1956, 366 pp.; Editor & Publisher of the magazine, *Computers and Automation*; Maker and Developer of small robots; Fellow of the Society of Actuaries; Secretary (1947-53) of the Association for Computing Machinery; Designer of all the Tyniacs and Brainiacs, more than half of the 33 Geniacs (1955); Designer of the patented Multiple Switch Disc and other features in the 1955 Geniac kit.

**BRAINIAC KIT (1958 MODEL) K17 . . .** the kit with limitless possibilities—backed by an organization of 10 years standing in the computer field—\$17.95. (For shipment west of Mississippi, add 80¢; outside U.S., add \$1.80).

### 7-Day Full Refund Guarantee If Not Satisfactory

MAIL THIS COUPON OR A COPY OF IT

BERKELEY ENTERPRISES, Inc.

815 Washington St., R177, Newtonville 60, Mass.

Please send me Brainiac Kit K17. (Returnable in 7 days for full refund if not satisfactory—if in good condition.) I enclose \$\_\_\_\_\_ in full payment.

My name and address are attached

### WHAT COMES WITH YOUR BRAINIAC KIT . . .

#### Complete Plans, Instructions, Explanations & Hardware:

- Every part needed to build Geniacs, Tyniacs, Brainiacs—over 600 pieces including control panel, multiple switch discs, jumpers, improved wipers, bulbs, sockets, washers, wire, battery and special tools.
- Complete descriptions of 151 experiments and machines.
- Over 160 circuit diagrams including 46 exact wiring templates.
- Manual "Tyniacs: Small Electric Brain Machines and How to Make Them" by Edmund C. Berkeley, 1956, 48 pages—includes Introduction to Boolean Algebra for Designing Circuits.
- "How to Go from Brainiacs and Geniacs to Automatic Computers" by Edmund C. Berkeley.
- Dr. Claude E. Shannon's historic 1938 paper given before the American Institute of Electrical Engineers: "A Symbolic Analysis of Relay and Switching Circuits," 12 pages.
- List of references to computer literature including "Minds and Machines" by W. Sluckin, published by Penguin Books (Baltimore), 1954, 233 pages, and other references.

only **\$17.95** . . . why pay more?

# New Machines and Gadgets

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE NEWS LETTER, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 976. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

**PORTABLE OAR LOCKS** holding paddle-shaped oars can be strapped to opposite sides of an inflated inner tube to provide simulated boat for children. The child sits in the center of the ring and rows in the conventional manner.

Science News Letter, February 28, 1959

**PAPER PLATES** have bottom tabs of transparent gummed tape that keep plates from blowing away, tipping over or sliding off the table. The tape adheres to wood, plastic, cloth, glass or metal and pulls away easily when the plates are picked up. The plates come in an adult size and in a children's size, the latter with nursery rhymes printed on in four colors.

Science News Letter, February 28, 1959

**ONE-PIECE WRENCH**, designed to ease and speed removal and replacement of hex filler plugs in automobile differentials, is used with a ratchet or hinge handle. It is said to save mechanics time, effort and bruised knuckles in working on hard-to-reach parts.

Science News Letter, February 28, 1959

**ROLLER SKATES** have front foot guards of polyethylene that are shaped like rabbits, as shown in the photograph, and protect shoes from being scuffed. Plastic



wheels allow the skates to be used indoors or outdoors. Adjustable buckles on front and back plastic straps are used to attach skates to shoes.

Science News Letter, February 28, 1959

**SPINNING FISH LURES** in the form of dice or billiard "eight" balls are designed for use when every other lure in the tackle box has failed to catch a fish. They are available in three weights,

equipped with three-way hooks, and reportedly attract fish.

Science News Letter, February 28, 1959

**AUTOMATIC EXPOSURE CONTROL** for professional cameras and lenses is battery powered with transistorized control circuits. A small, motor-driven control head connected to a lens diaphragm continuously adjusts the f/stop of the lens to provide correct exposure even in changing light conditions.

Science News Letter, February 28, 1959

**CERAMIC ASH TRAY** has cigarette rest equipped with a heat-sensitive spring. When a cigarette is left burning on the safety rest it heats the spring that tilts the rest, automatically dropping the cigarette into the bottom of the tray. The device is intended to keep burning cigarettes from falling onto a rug or table top.

Science News Letter, February 28, 1959

**FILM LOADERS** and Reels for developing tanks provide for self-loading of 35 mm, 127, 120 and 620 films. Film is inserted into a guide and wound by turning a handle. In this way it is unnecessary to feed in the film by hand and risk kinking or scratching it. All parts are of stainless steel.

Science News Letter, February 28, 1959



## Nature Ramblings



By HORACE LOFTIN

► DESPITE PESSIMISTIC weather reports, snowbound cities and frost-nipped noses and ears, there is good reason to believe that spring is racing in on us. For already the first woodland wildflowers are rising from the forest litter in the southern states, probing the cool air with tender stems and new leaves.

The beautiful three-leaved Trillium rears its foliage as early as January, and these and the atamasco lily bloom in the Gulf states early in February. Of course the violets are also up there.

Following the sun northward will be a host of other woodland flowers, each trying to outdo the other with the earliest appearance. This seeming haste on the part of the wildflowers has more behind it than sheer exuberance, however. The very survival of the species depends on their early germination, growth, blossoming and seeding long before springtime takes over the forest completely.

### Signs of Spring



These typical woodland spring flowers are not able to flourish where sunlight is restricted. When the forest trees spread their new canopy of leaves over the ground after spring arrives, the woodland is placed in shade that is detrimental to the wildflowers. Thus, they must have their day in the sun early in the year, before the trees come into full foliage.

Others of the spring wildflowers must put in an early appearance so that later-

developing plants will not compete with them for water, nutrients and even growing room.

From time to time, an early blooming wildflower that represents a southerly pioneer may appear. Farther northward this flower may be seen later in the year and even lasting longer in the season, since it is adapted for life in this cooler home. In the south, however, it must take advantage of the short period between rigorous winter and early spring, when conditions are favorable.

As spring wears on into summer, the woodlands will lose their blossoms, except for some shade-loving plants such as honey-suckle. Then the fields will have the gay summer flowers, such as the daisies, the buttercups, and the dandelions, those robust lovers of sunshine.

It is hard to think about daisies in this frigid weather, but the signs are out. Just take a look, no farther away than the nearest patch of woods.

Science News Letter, February 28, 1959

